

NEW SYNONYMY OF *EPOCHRA* LOEW WITH
EUPHRANTA (*RHACOCHLAENA* LOEW) (DIPTERA: TEPHRITIDAE) AND
DESCRIPTION OF A NEW SPECIES FROM MEXICO

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Abstract.—The generic name *Epochra* Loew (1873) is synonymized with *Rhacochlaena* Loew (1862), a subgenus of *Euphranta* Loew. A new species, *Euphranta mexicana*, is described from specimens reared from fruit of *Ribes pringlei* Rose in Morelos, Mexico. The male and female terminalia of *Euphranta canadensis* (Loew), n. comb., are also described. A species of *Biosteres* (Braconidae) is reported to parasitize *E. mexicana*.

Resumen.—El nombre genérico *Epochra* Loew (1873) se sinonimiza con *Rhacochlaena* Loew (1862), un subgénero de *Euphranta* Loew. Se describe una nueva especie, *Euphranta mexicana*, con especímenes criados de frutos de *Ribes pringlei* Rose en Morelos, México. También, se describen las terminalia del macho y de la hembra de *Euphranta canadensis* (Loew), comb. n. Además, se registra una especie de *Biosteres* (Braconidae) que parasita *E. mexicana*.

Key words: *Euphranta*, *Epochra*, Tephritidae, fruit flies, *Ribes*

Most genera of the tribe Euphrantini (Diptera: Tephritidae) are restricted to the Old World tropics, although at least 12 of the approximately 90 known species of *Euphranta* Loew occur in the Palearctic Region. Until recently the tribe was thought not to occur in the New World, but A. Freidberg (pers. comm.) and Foote et al. (in press) discovered that the Nearctic genus *Epochra* Loew has a setulose anatergite and therefore belongs in the Euphrantini. Upon further examination, Freidberg and I found no significant differences between it and *Euphranta* subgenus *Rhacochlaena* Loew, so I therefore consider *Epochra* a subjective junior synonym of *Rhacochlaena*.

Hardy (1983), White (1988), Korneyev (1990), and White and Elson-Harris (1992) summarized the limited but diverse biological data that are known for the species of

Euphranta. Both Nearctic species, including the new central Mexican species described in this paper, breed in fruit of species of *Ribes* L. (Saxifragaceae).

The terminology used in this paper follows McAlpine (1981), and for the wing bands, Foote (1981, Fig. 71).

Euphranta subgenus *Rhacochlaena* Loew
Rhacochlaena Loew 1862: 50 (type species *Trypeta toxoneura* Loew, by monotypy); see Hardy 1983 and White 1986 for additional synonymy.

Epochra Loew 1873: 238 (type species *Trypeta canadensis* Loew, by monotypy).
NEW SYNONYMY.

Diagnosis.—The two New World species of *Euphranta* can be distinguished from all other American genera of Tephritidae by

their setulose anatergite. Their lack of presutural supra-alar and posterior orbital setae are also useful diagnostic characters.

Remarks.—The type species of *Rhacochlaena* and *Epochra* do not differ in chaetotaxy, wing venation or other characters that Hardy (1983) and Hancock (1986) use to separate the genera of Euphrantini. In particular, the acrostichal (prescutellar) setae are present, which is the main character used to distinguish *Rhacochlaena* from the subgenus *Euphranta*. Phylogenetic relationships among the species of *Euphranta* have not been analyzed, but *E. toxoneura* and *E. canadensis* appear to be relatively closely related. They are among the species with short arisal hairs and with the subapical wing band interrupted in cell r_{2+3} . Their distiphalli and aculei also are very similar (compare Fig. 2E–F with White 1988, Figs. 33–34). I therefore see no reason to recognize *Epochra* as a separate taxon.

KEY TO THE NEARCTIC SPECIES OF
EUPHRANTA (RHACOCCHLAENA)

Wing (Fig. 1C) with discal band (band across r-m) interrupted in cell r_{2+3} , its anterior part equidistant from its posterior part and subapical band (band across dm-cu). Apical band not connected to discal band along Costa, not extended into cell r_1 . Discal and subapical bands broadly connected posteriorly, no hyaline space between them in cell cu_1 . Scutum mostly dark brown or bluish gray. [Central Mexico.] *mexicana* Norrbom, n. sp.
Wing (Fig. 1A, B) with discal band (band across r-m) uninterrupted and anteriorly well separated from subapical band (band across dm-cu). Apical band narrowly connected to discal band along Costa in cell r_1 . Discal and subapical bands usually separated by hyaline space in cell cu_1 . Scutum orange brown. [Canada, northern and western U.S.A. south to mountains of California and New Mexico.] *canadensis* (Loew)

Euphranta (Rhacochlaena) mexicana
Norrbom, NEW SPECIES
(Fig. 1C, 2A, C)

Holotype.—♂ (USNM), MEXICO: Morelos: Lagunas de Zempoala, reared ex. fruits of *Ribes pringlei* Rose (89M13) collected

10–11.VIII.1989, emerged 5.X.1989, A. L. Norrbom.

Paratype.—♂ (USNM), same data as holotype (teneral, wings not expanded).

Diagnosis.—*E. mexicana* can be recognized from *E. canadensis* by the characters given in the key, by its wider apical spot in cell r_{4+5} (Fig. 1C), and by its shorter inner surstylus (Fig. 2A, C) and aedeagus. Although the female of *E. mexicana* is unknown, its syntergosternite 7 probably is shorter than that of *E. canadensis*, because the length of that structure is usually correlated with that of the aedeagus. Of the nine Palearctic species of the subgenus *Rhacochlaena*, *E. toxoneura* (Loew), *E. licenti* Zia, *E. japonica* (Ito), and *E. transmontana* (Ito) have wing patterns most similar to *E. mexicana*, with the discal band interrupted and the subapical band not extended anteriorly through cell r_{2+3} . They differ from *E. mexicana* in that the apical band is extended into cell r_1 , and the discal and subapical bands are separated posteriorly. Also, in some of these species, the subbasal band is interrupted in cells r_1 and r_{2+3} .

Description.—*Head*: Ocellar seta absent; 1 orbital seta, posterior seta absent; 3 frontal setae, middle one closer to anterior than to posterior seta; arista short pubescent. *Thorax*: Generally pale brown; scutum mostly dark bluish gray or dark brown, sides and broad medial postsutural stripe pale brown; scutellum pale brown; mediotergite and subscutellum dark brown; mesonotum 2.00 mm long; thorax entirely microtrichose (except scutum medially, anterior to scapular setae), scutum with 2 paired stripes that appear shiny or darker at some angles because of microtrichia of different density or shape—these include 1 submedial stripe from anterior margin to about halfway between transverse and scuto-scutellar sutures, and 1 sublateral stripe, interrupted at transverse suture but extended to intra-alar seta; inner and outer scapular setae present; presutural supra-alar seta absent; 1 post-

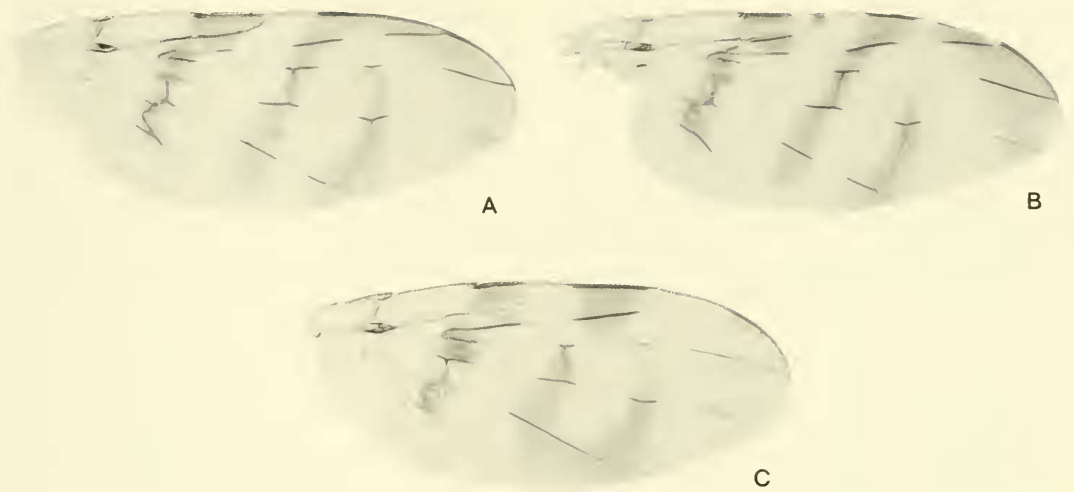


Fig. 1. Wings: A, *E. canadensis*, Chaffee Co., Colorado; B, same, Modoc Co., California; C, *E. mexicana*, holotype.

pronotal, 2 notopleural, 1 postsutural supra-alar, 1 intra-alar, 1 postalar, 1 acrostichal, 1 dorsocentral, 2 scutellar, 1–2 large anepisternal, 1 anepimeral, and 1 katepisternal seta present; dorsocentral seta closer to acrostichal seta than to postsutural supra-alar seta; anatergite with long fine setae. *Legs*: entirely pale brown; femora without ventral spines; mid tibia with 1 large ventroapical spinelike seta. *Wing* (Fig. 1C): Length 4.99 mm; subbasal band complete, extended anteriorly into stigma, separated from discal band; discal band interrupted in cell r_{2+3} , its anterior part broad and equidistant from its posterior part and anterior end of subapical band; discal and subapical bands broadly connected posteriorly, hyaline area between them in cell dm not extended across vein Cu_1 ; apical band not extended into cell r_1 , and isolated from discal band, in cell r_{4+5} very broad, extended more than halfway to dm-cu. *Abdomen*: Terga dark brown, except terga 3 and 4 yellow medially, and terga 1 + 2 and 5 yellow posteromedially. *Male terminalia*: Surstyli (Fig. 2A, C) very long, outer surstylus 0.45 mm long; inner surstylus 0.78 times as long as outer surstylus;

aedeagus 1.12 mm long, 0.56 times as long as mesonotum; distiphallus similar to *E. canadensis*.

Biology.—*Ribes pringlei* is a shrub or understory tree at Lagunas de Zempoala, a site at approximately 3000 m altitude. Approximately 20 percent of the fruits collected were infested. The larvae were heavily parasitized by a braconid wasp (*Biosteres* n. sp. near *sanguineus* (Ashmead)); 50 wasp adults, but only two adults of *E. mexicana*, emerged from the sample of fly puparia.

Euphranta (Rhacochlaena) canadensis,
NEW COMBINATION
(Fig. 1A, B, 2B, D–G)

Trypeta canadensis Loew 1873: 235.

Epochra canadensis: Loew 1873: 238; see Foote et al. (in press) for full synonymy, distribution, host and type data.

Description.—*Head*: Ocellar seta minute or absent; 1 orbital seta, posterior seta absent; 3 (rarely 4) frontal setae, middle one usually closer to anterior than to posterior seta; arista short pubescent. *Thorax*: Generally pale brown; scutum mostly orange or

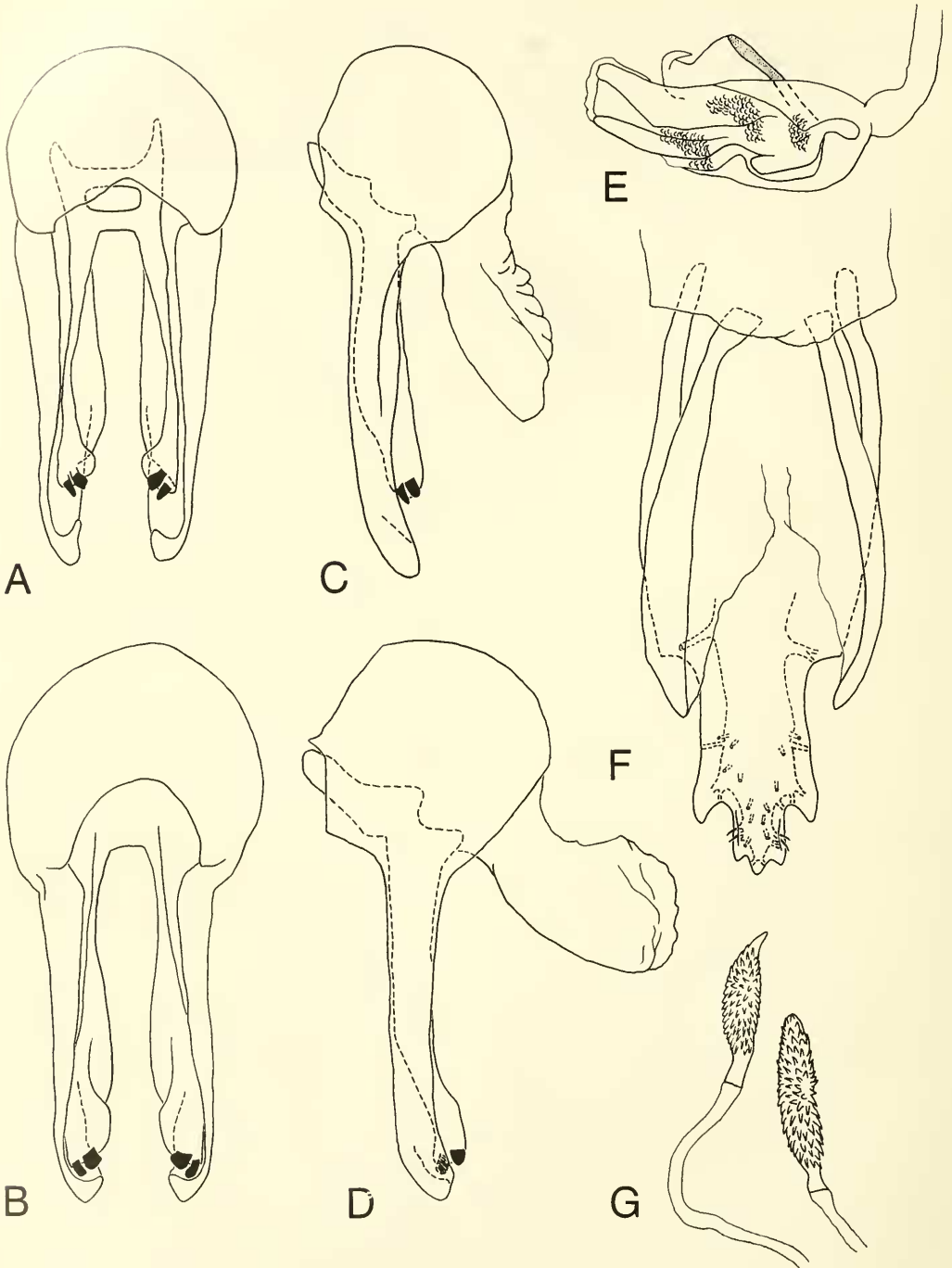


Fig. 2. Terminalia: A, C, *E. mexicana*; B, D-G, *E. canadensis*; A, B, epandrium, surstyli and proctiger, posterior view; C, D, epandrium and surstyli, lateral view; E, distiphallus, lateral view; F, aculeus, ventral view; G, spermathecae (2 of 3).

pale brown, with grayish microtrichia, rarely with brown postsutural sublateral stripe; scutellum pale brown, often with broad medial brown spot; mediotergite and subscutellum typically yellow with T-shaped dark-brown mark, but sometimes more extensively yellow or brown; mesonotum 1.83–2.70 mm long; thoracic chaetotaxy and scutal microtrichia as in *E. mexicana*, with stripes appearing shiny or darker than rest of scutum at some angles. *Legs*: Orange, other characters as in *E. mexicana*. *Wing* (Fig. 1A, B): Length 4.94–6.17 mm; discal and subapical bands usually separated posteriorly (connected in posterior half of cell cu_1 in only 1♀ from Maine and 1♂ from Alberta among 83 specimens examined); apical band extended into cell r_1 and narrowly connected to discal band, in cell r_{4+5} , extended at most halfway to dm-cu. *Abdomen*: Terga yellow, each especially terga 4 and 5, often with mediolateral dark brown spot or band of varying size. *Male terminalia*: Surstyli (Fig. 2B, D) very long, outer surstylus 0.40–0.45 mm long; inner surstylus 0.90–0.95 times as long as outer surstylus; aedeagus 2.08–2.54 mm long, 0.93–1.08 times as long as mesonotum; distiphallus (Fig. 2E) stout, surface largely covered with minute platelike or scalelike sculpture (extent of this difficult to determine). *Female terminalia*: Syntergosternite 7 1.49–1.74 mm long, 0.75–0.79 times as long as mesonotum; aculeus relatively short and broad, 0.59–0.65 mm long, 0.35–0.38 times as broad as long, tip (Fig. 2F) with 3 pairs of strong steps or lobes; 3 spermathecae (Fig. 2G) long and slender.

Remarks.—Specimens of *E. canadensis* from the Pacific Coast states generally have an apical hyaline spot in cell r_{4+5} (Fig. 1B) that is usually absent in specimens from farther east (Fig. 1A). The presence of this spot is variable in series of specimens from the same localities in Maine, Idaho, and Washington, however, and I found no correlation between it and other variable characters. The connection of the apical band with the discal band distinguishes *E. canadensis* from the

nine Palearctic species of *Rhacochlaena* as well as from *E. mexicana*; *E. incompleta* Hardy, from Borneo, perhaps has the most similar wing pattern. White and Elson-Harris (1992: 344) recently redescribed the third-instar larva of *E. canadensis*.

Specimens examined.—83 specimens from Alberta, British Columbia, California, Colorado, Idaho, Maine, New Mexico, Oregon, Utah, Washington, and Wyoming.

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